Fig. 1A

Local DNA opening by PNA creates activated nucleation site for both RecA-coated complementary single-stranded probes

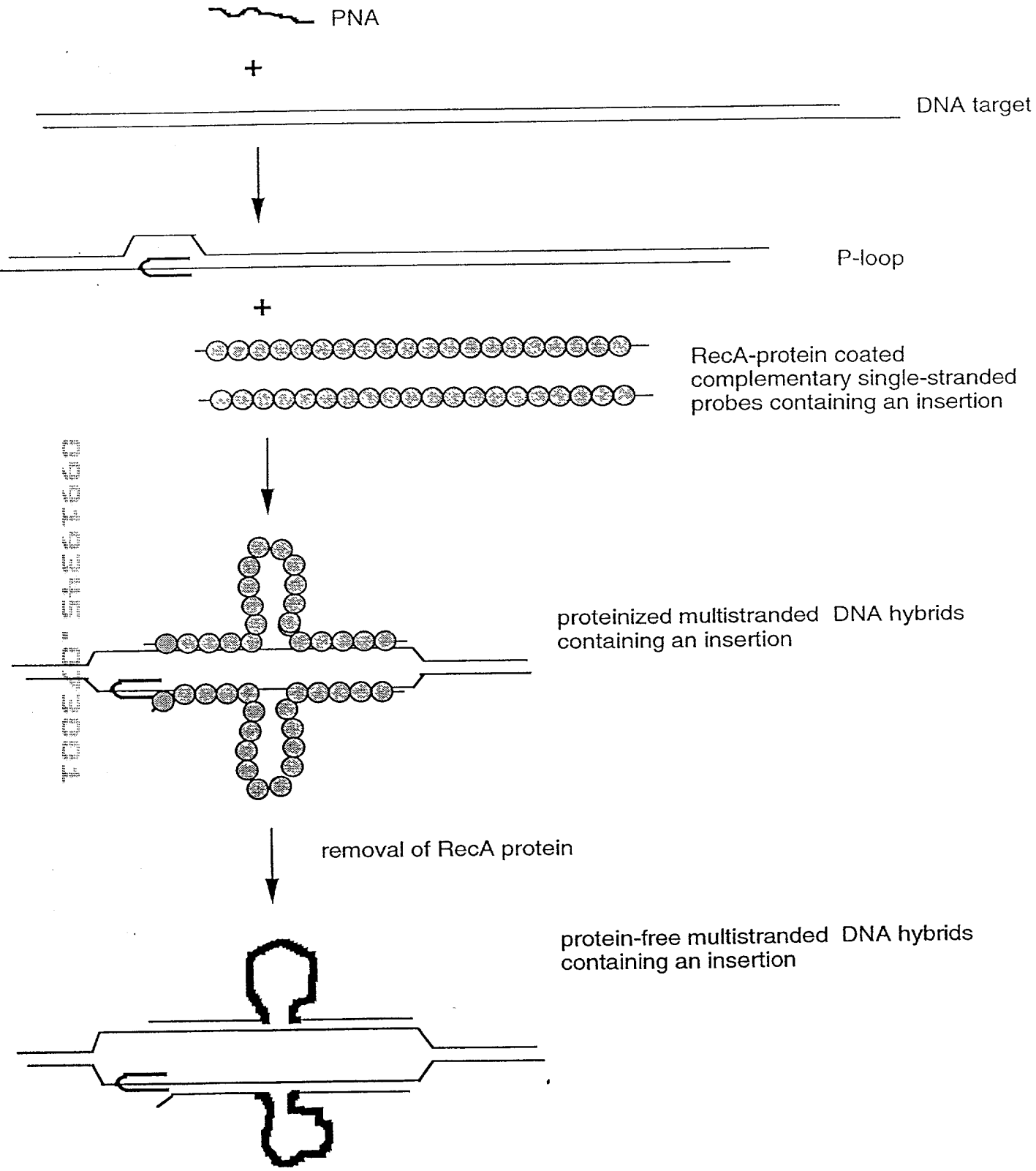

Fig 1B: Stabilization of single D-loop hybrids by analog probes.

When the PNA binding site is within the probe-target hybrid, PNA can stabilize single D-loops by trapping the strand exchange process.

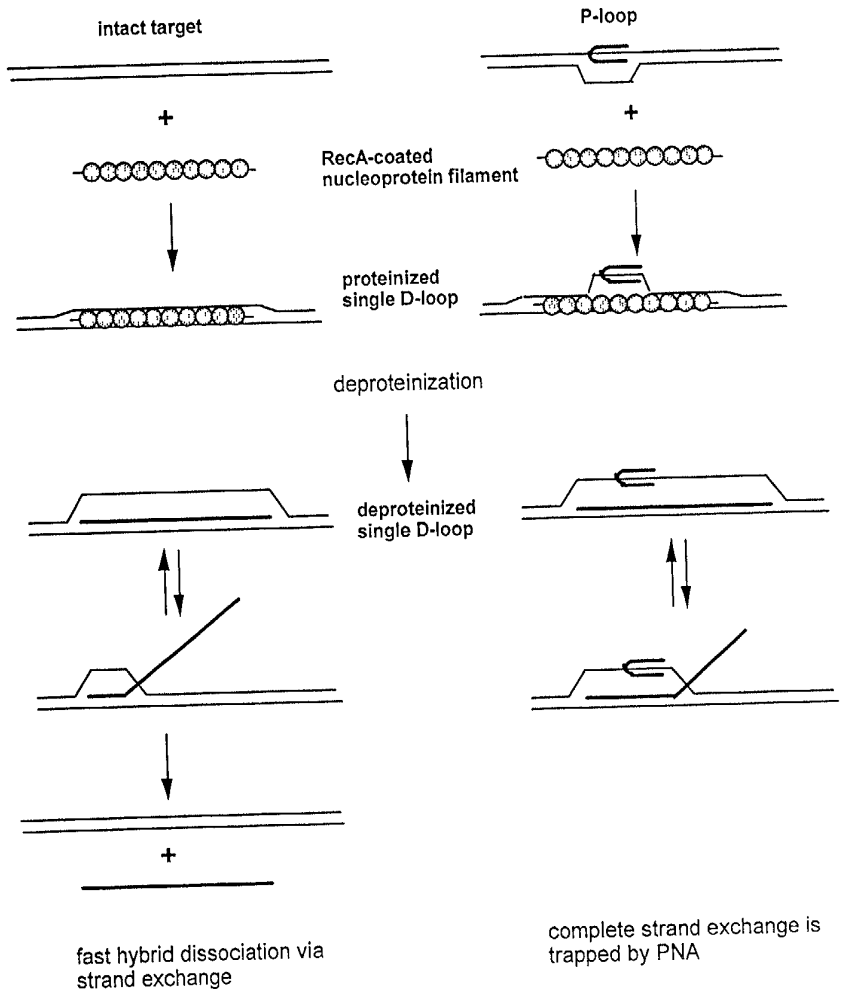

Fig. 1C

PNA activates the binding of the second coming RecA-coated single-stranded probe via stabilization of the "opened" state of the D-loop formed by the the first coming RecA-coated single-stranded probe

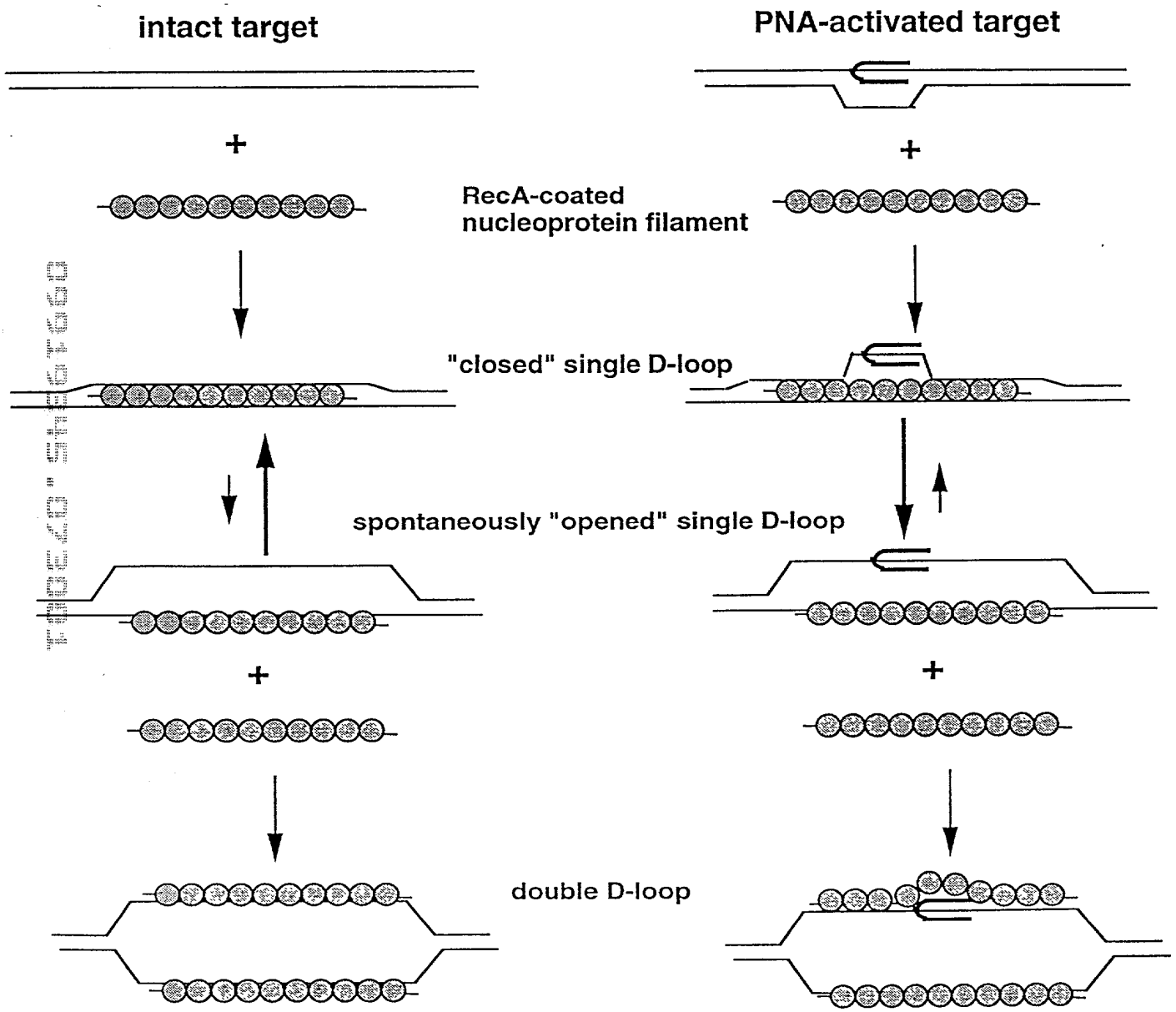

Fig. 2 **PNA-directed double-stranded break in the target DNA followed by homologous DNA targeting**

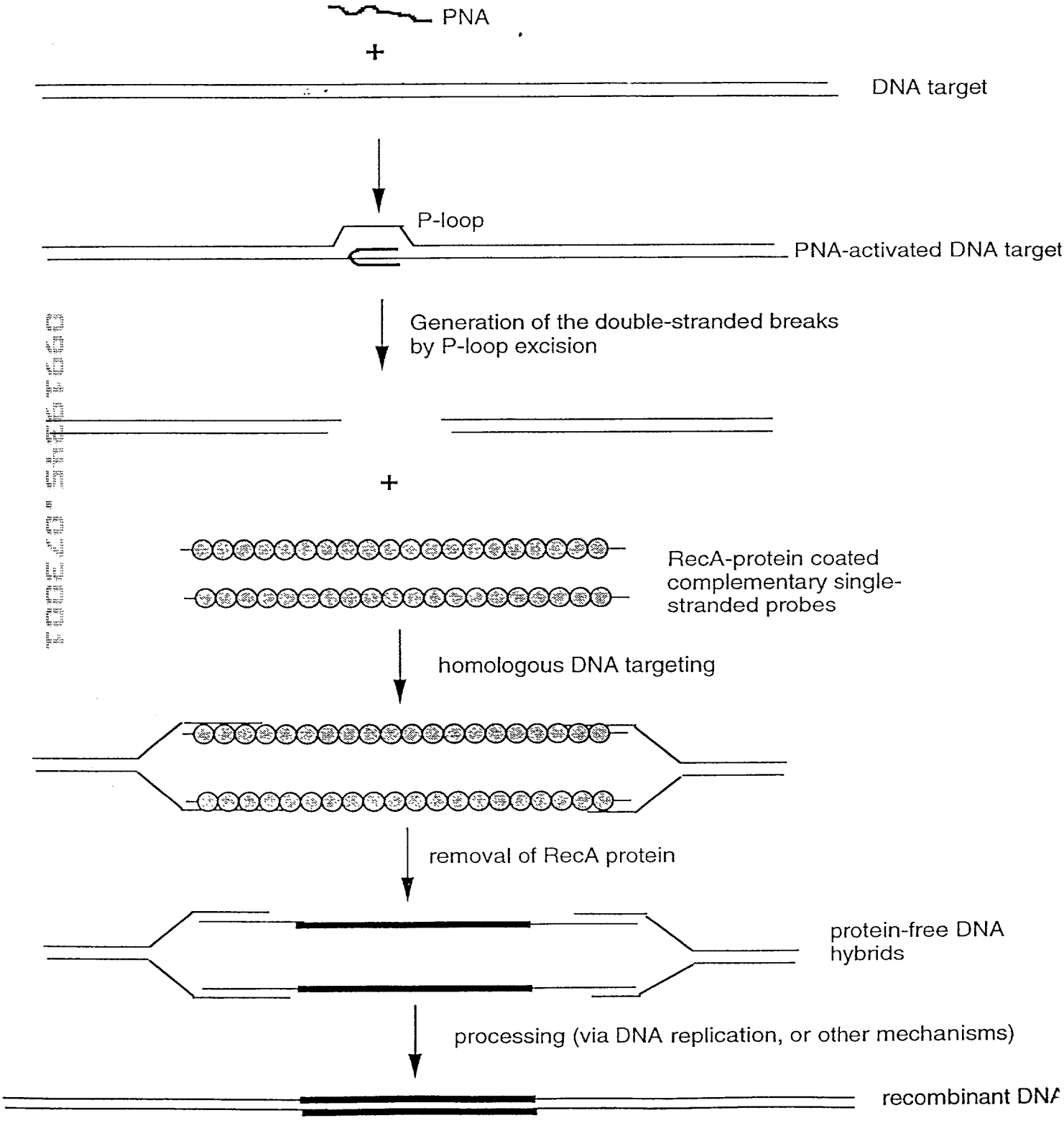

Fig. 3A **Processing of the hybrids by strand excision followed by DNA repair**

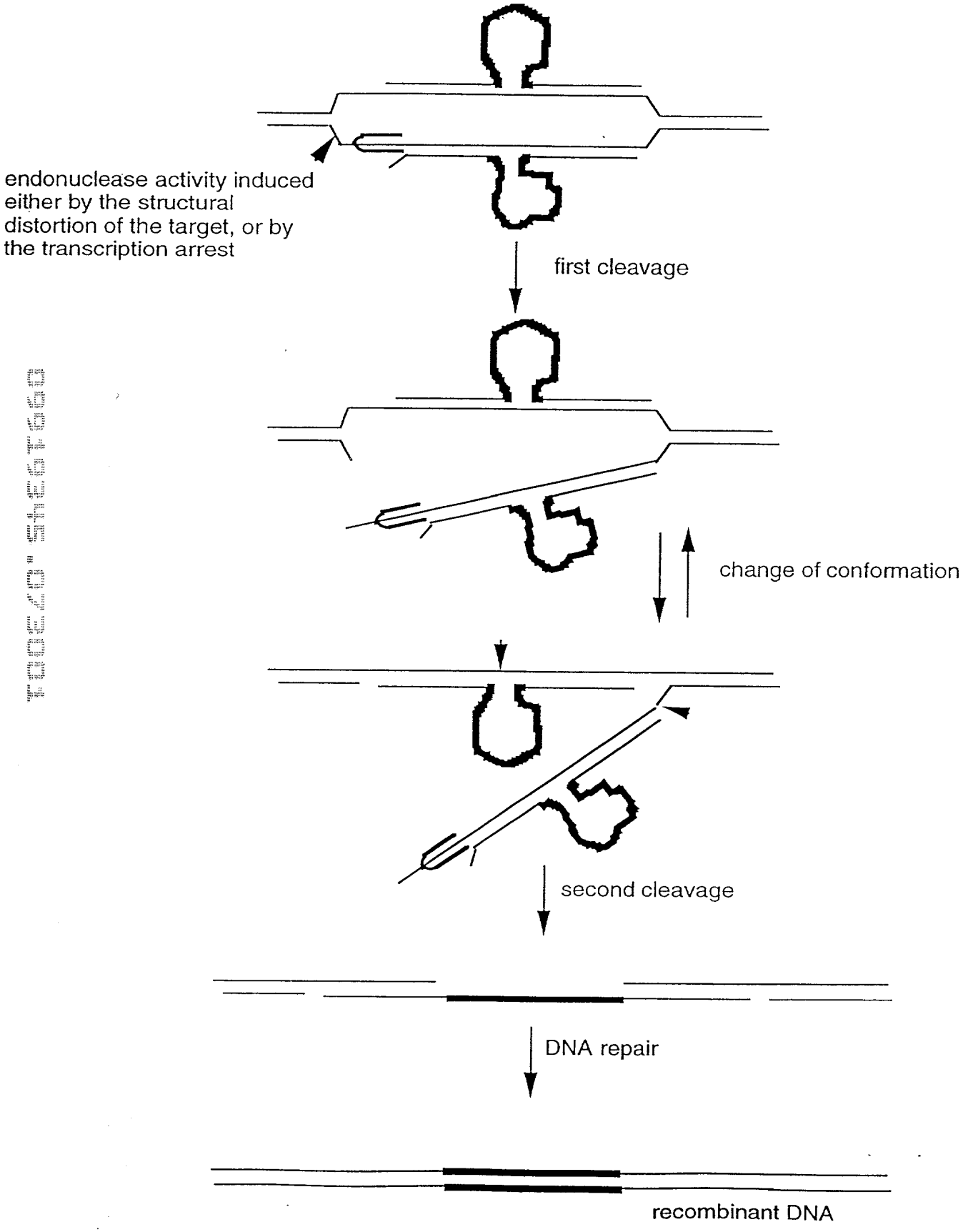

Fig.3B

Hybrid processing mediated by target DNA replication when the PNA site is outside the heterologous insert site

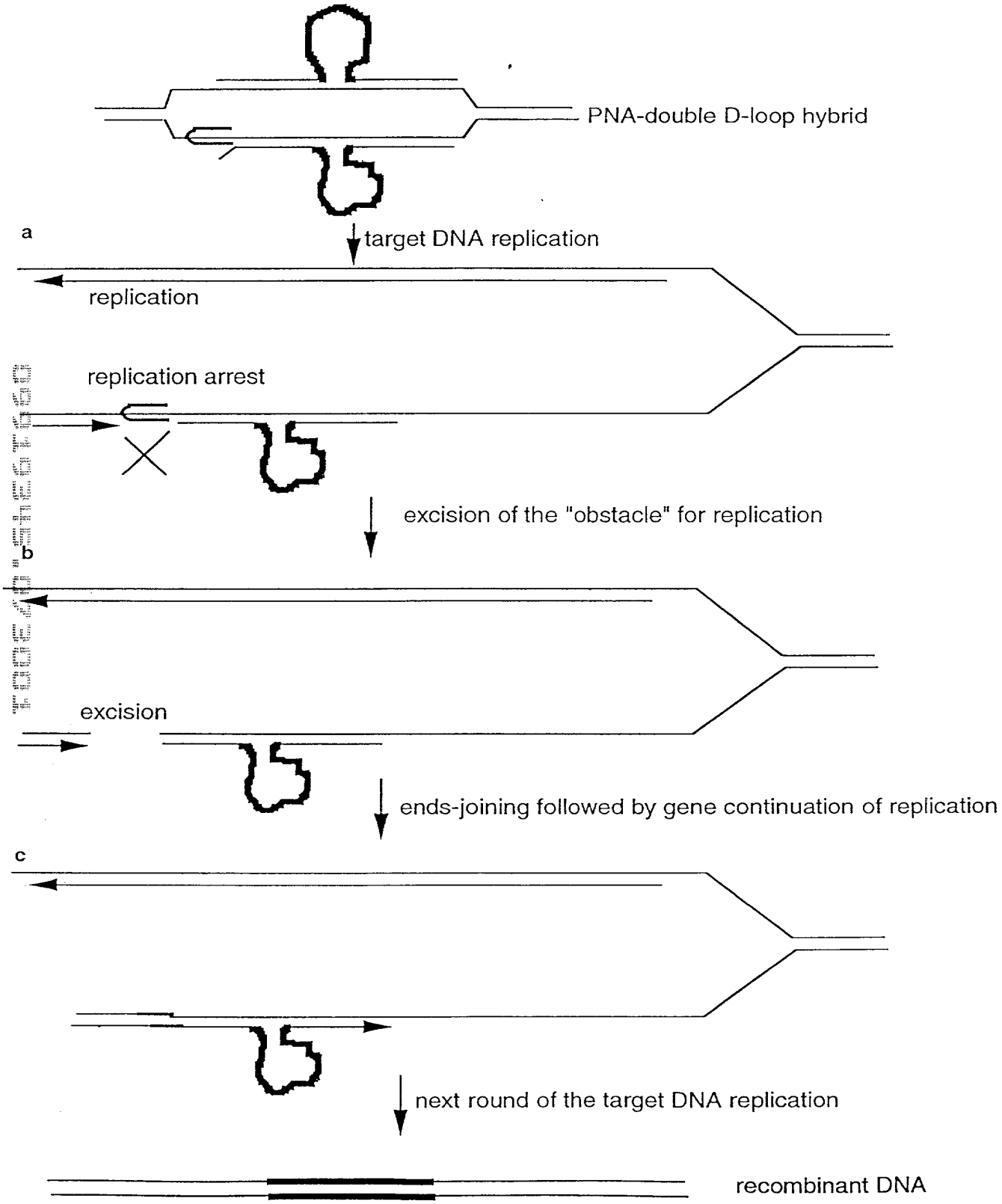

Fig. 3C **Hybrid processing mediated by target DNA replication when the PNA site is inside the heterologous insert site**

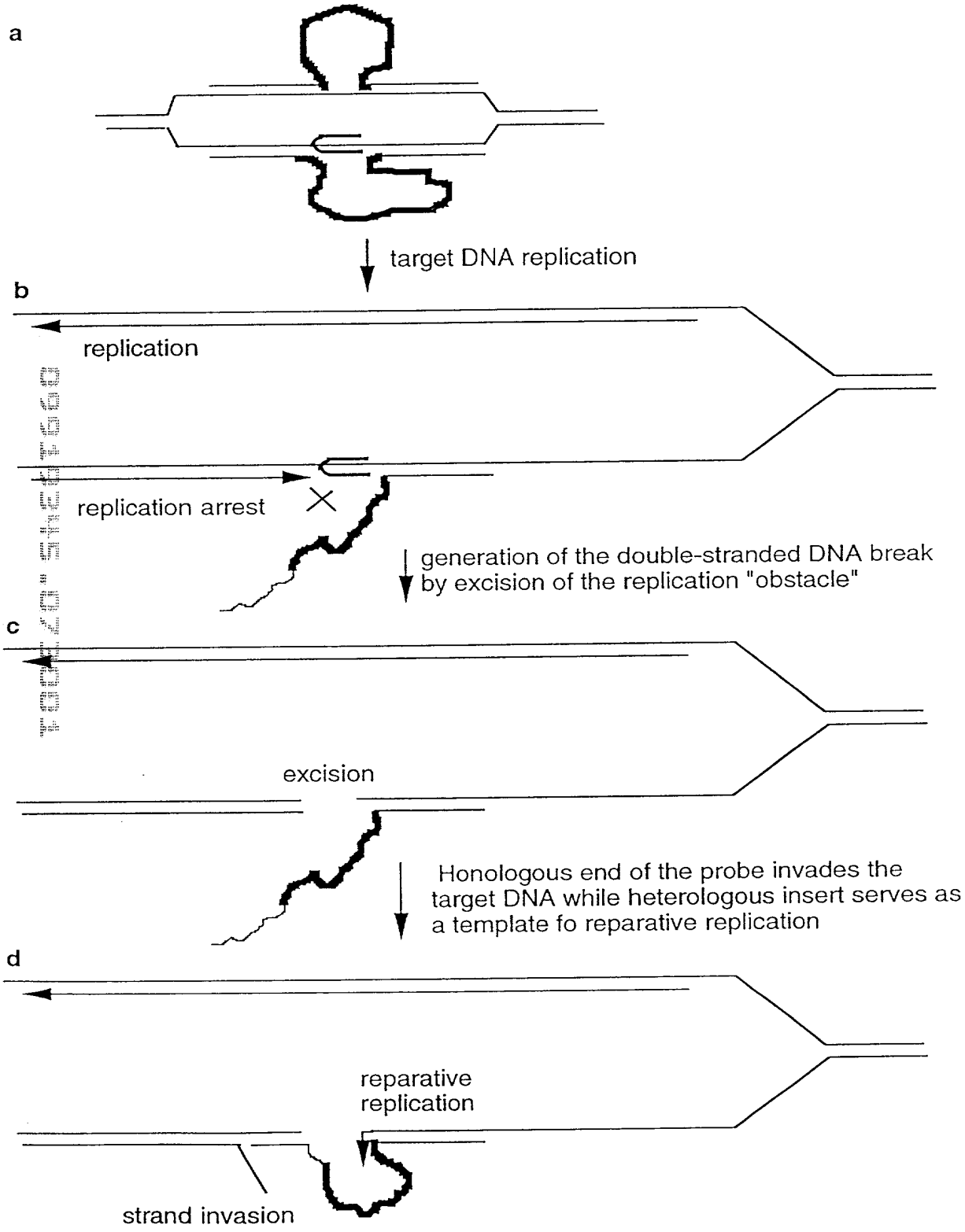

Fig 3C contd.

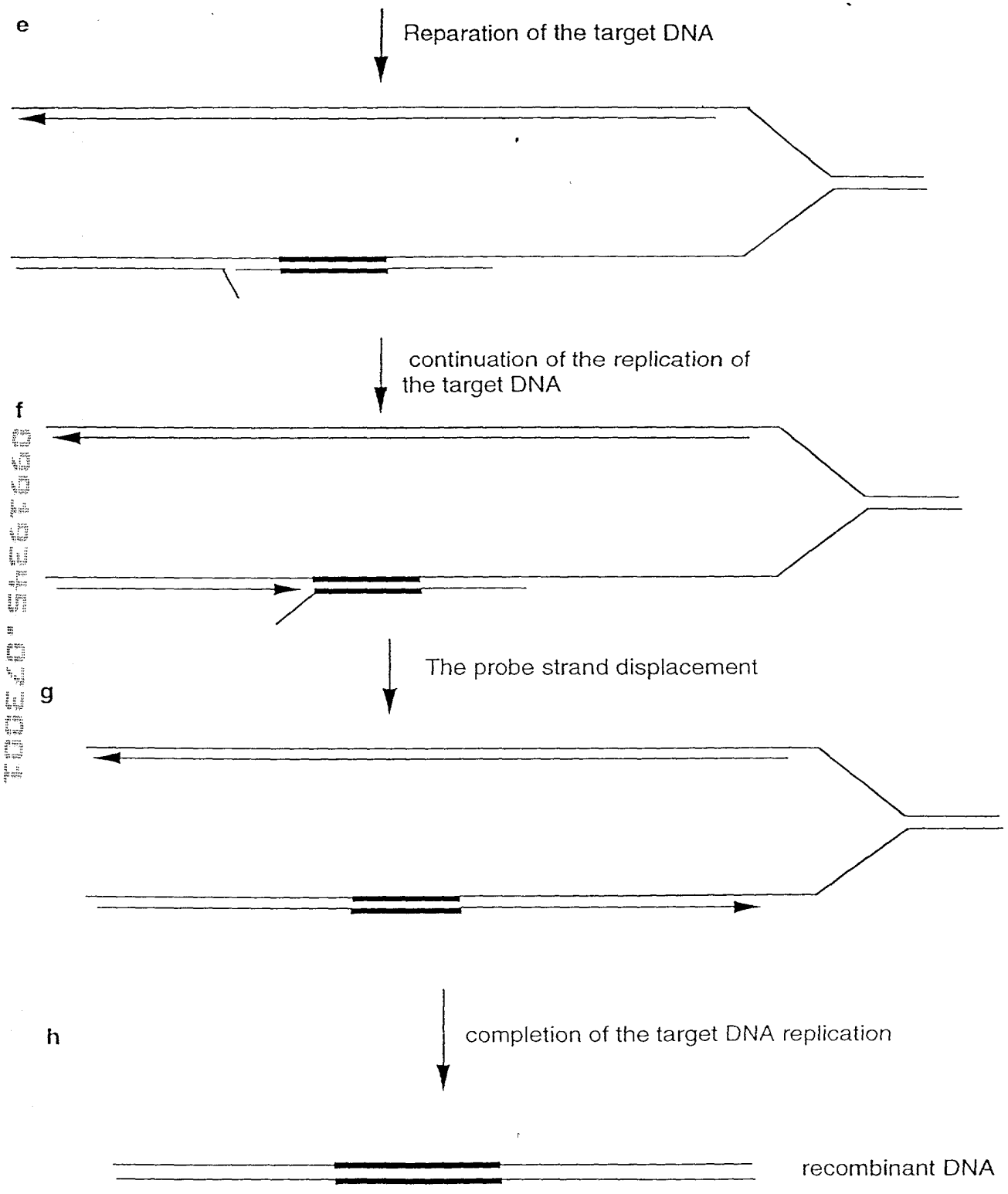
e
Reparation of the target DNA
continuation of the replication of the target DNA
f
The probe strand displacement
g
h
completion of the target DNA replication
recombinant DNA

Fig.4. Cloning of linear (including genomic) DNA fragments mediated by PNA activated homologous DNA targeting

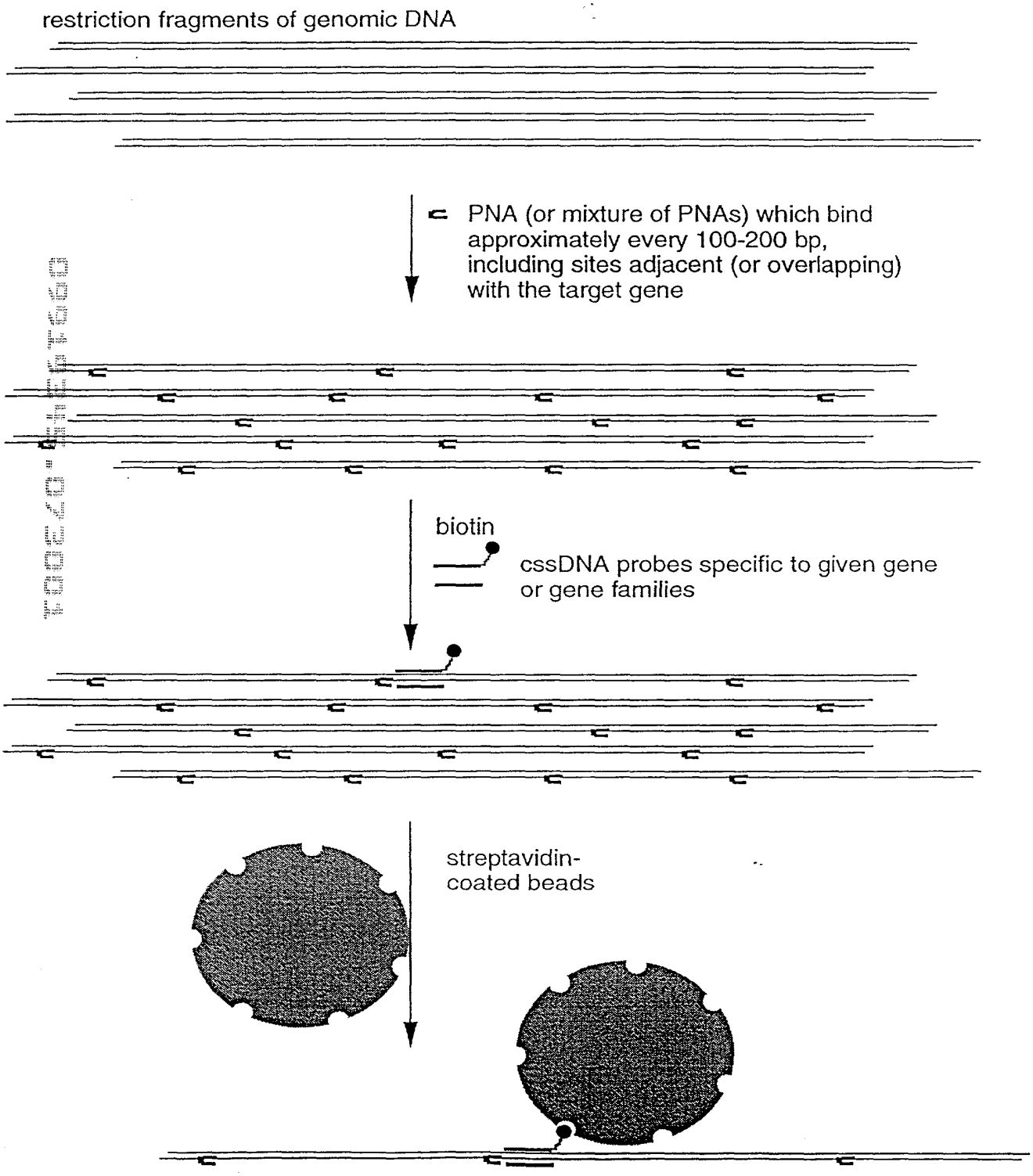

Fig.4 (continued)

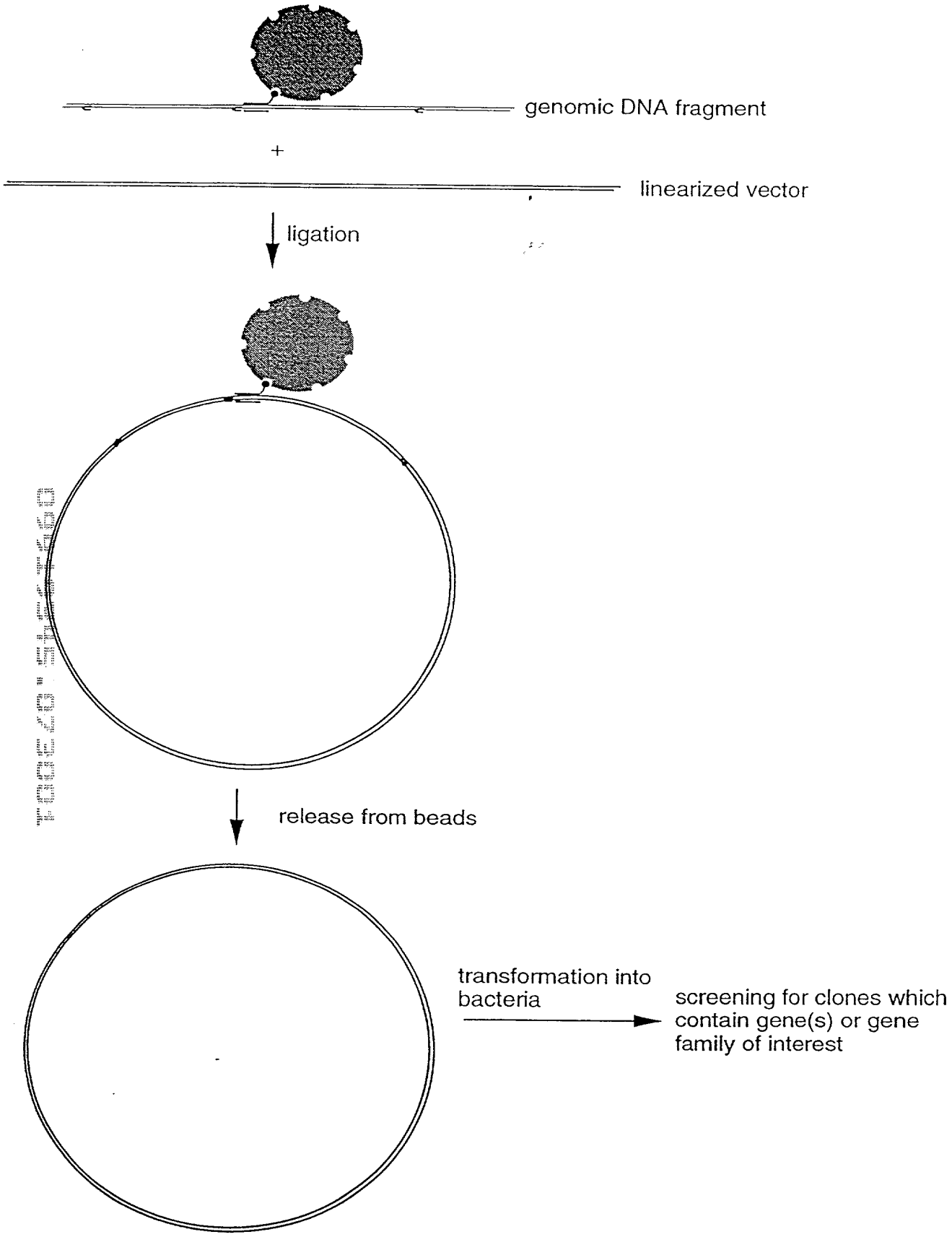

Fig. 5A. Scheme for targeting of human HPRT gene

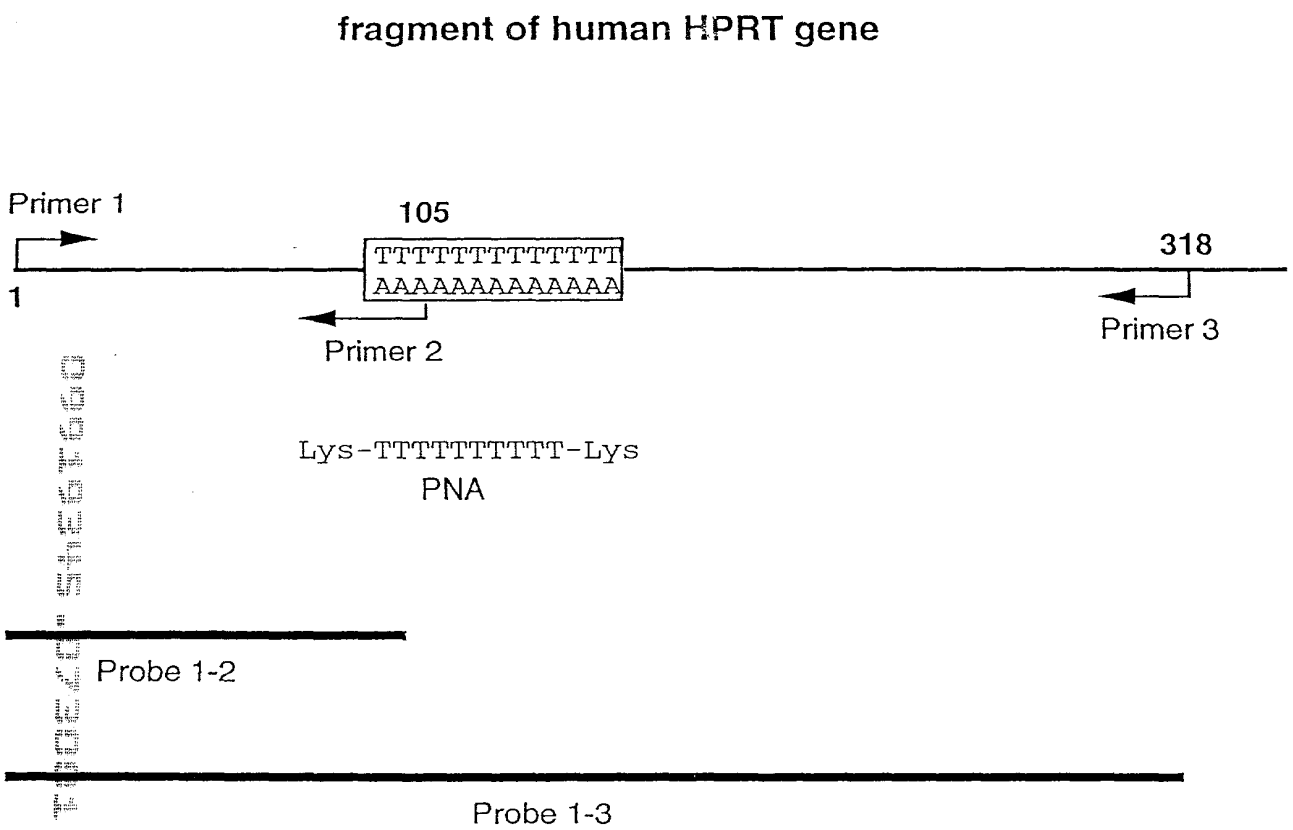

Fig. 5B. Targeting of the human HPRT gene fragment with the probe adjacent to the PNA binding site

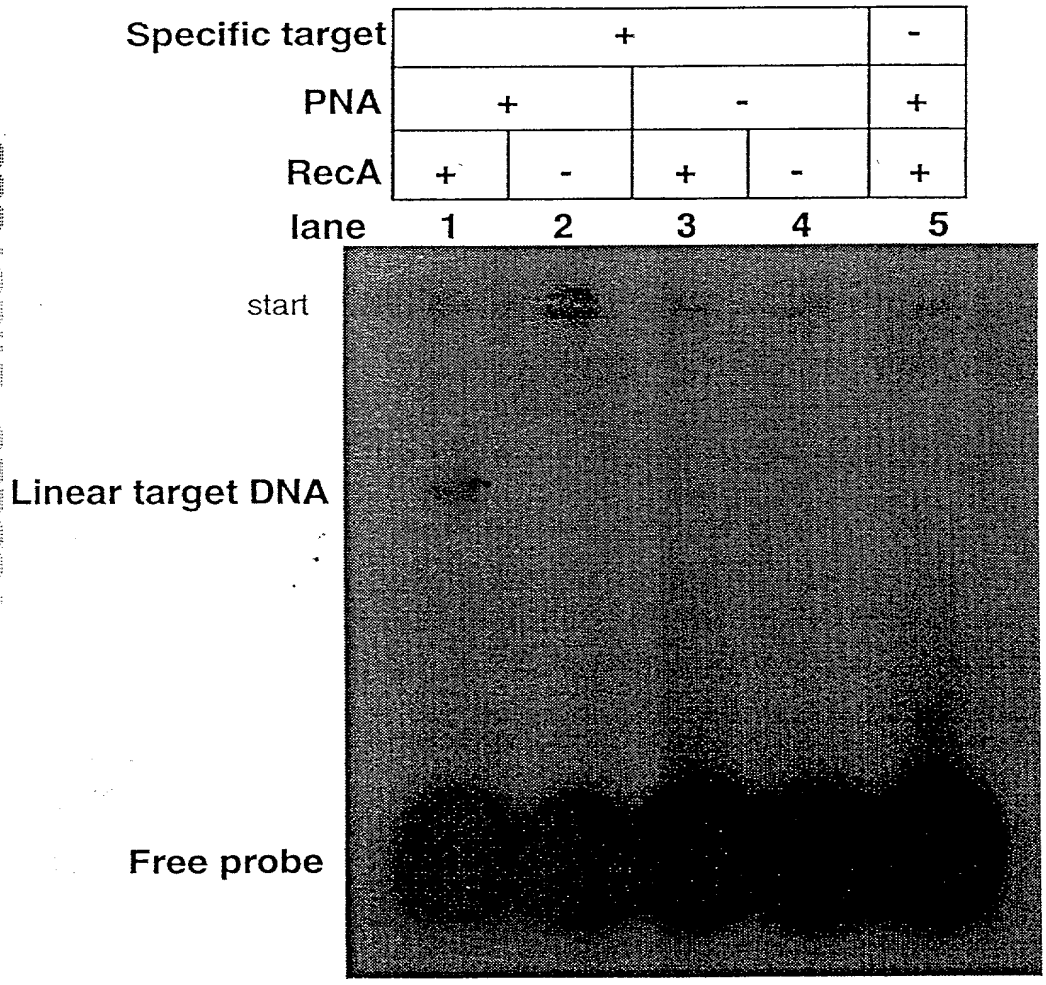

Fig. 5C. Targeting of the human HPRT gene fragment with the probe with the PNA binding site inside it